

REMARKS

Claims 1-27 are present in the application. In view of the remarks that follow, Applicants respectfully request reconsideration. On page 5 of the Office Action, the Examiner offers some comments in a "Response to Arguments" section. The Examiner's comments are addressed in the remarks below.

Premature Finality

Applicants respectfully traverse the finality of the Office Action. More specifically, MPEP 706.07(a) specifies that an Office Action shall not be final:

where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims, nor based on information submitted in an information disclosure statement filed during the period set forth in 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p).

In the present Office Action, section 6 on page 3 sets forth an obviousness-type double-patenting rejection, asserting that Claims 1-3 in the present application would be obvious in view of Claims 1, 2 and 8 (respectively) in a copending application. In contrast, the most recent prior Office Action set forth a double-patenting rejection of Claims 1-3, but failed to specify a one-to-one relationship between these claims and respective claims of the prior application. To the extent the Examiner has now set forth a different double-patenting rejection in an attempt to cure a defect in the prior double-patenting rejection, the current double-patenting rejection is a new ground of rejection. Applicants have not amended the claims since filing, nor have Applicants filed an IDS that would justify a new ground of rejection. Accordingly, the obviousness-type double-patenting rejection of Claims 1-3 in the present Office Action represents a situation "where the examiner introduces a new ground of rejection that is neither necessitated by

applicant's amendment of the claims nor based on information submitted in an information disclosure statement". Thus, as discussed above and in MPEP §706.07(a), the present Office Action cannot properly be made a final rejection.

A further consideration is that the present Office Action presents a rejection of Claims 1-27 under 35 U.S.C. §103 as obvious in view of a proposed combination of teachings from Hazelton U.S. Patent Application Publication No. 2006/0023185 and Van Slyke U.S. Patent No. 5,788,781. Although the most recent prior Office Action also rejected Claims 1-27 under §103 based on Hazelton and Van Slyke, the stated motivation for making the proposed combination has been changed. For example, the statement of motivation offered in lines 15-18 on page 4 of the prior Office Action has been discarded in favor of a different and more detailed statement of motivation in lines 20-25 on page 4 of the present Office Action. As discussed in MPEP 706.02(j), a proper statement of motivation is one of the minimum required elements needed to properly establish a prima facie case of obviousness under §103. To the extent the Examiner has discarded the prior theory on motivation in favor of an entirely new theory on motivation, the §103 rejection in the present Office Action is necessarily a new ground of rejection. Applicants have not amended the claims since filing, nor have Applicants filed an IDS that would justify a new ground of rejection. Accordingly, the §103 obviousness rejection of Claims 1-27 in the present Office Action represents a situation "where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement". Thus, as discussed above and in MPEP §706.07(a), the present Office Action cannot properly be made a final rejection.

For each of the foregoing reasons, it is respectfully submitted that the finality of the present Office Action is not proper and must be withdrawn, and notice to that effect is respectfully requested.

Incomplete Office Action

Applicants respectfully object to the present Office Action because it is not complete. More specifically, the provisions of MPEP §707.07(f) instruct examiners that:

Where the applicant traverses any rejection, the examiner should, if he or she repeats the rejection, take note of the applicant's argument and answer the substance of it.

In the most recent prior Response (filed September 5, 2007), Applicants presented a number of arguments against claim rejections. In the present Office Action, the Examiner takes the position that he is repeating claim rejections from the prior Office Action. The present Office Action includes a "Response to Arguments" section on page 5, where the Examiner addresses a few of Applicants' prior arguments. However, the present Office Action does not contain a single word of reply to several of the other arguments presented in Applicants' last Response.

As one example, in the first paragraph on page 3, Applicants' last Response explained why the Examiner was wrong in asserting that Claim 1 omits an essential step. In lines 2-4 on page 5 of the present Office Action, the Examiner responds by simply making a conclusory assertion that Claim 1 omits an essential step. This merely restates the rejection, and thus begs the question. The Examiner fails to "take note of the applicant's argument and answer the substance of it". Accordingly, it is respectfully submitted that the present Office Action is not complete, because it fails to comply with the PTO requirement set forth in MPEP §707.07(f).

As another example, in the first paragraph on page 4 of Applicants' last Response, Applicants pointed out that the two double-patenting rejections each fail to meet the PTO's standard requirements for a proper double-patenting rejection. In lines 4-6 on page 5 of the present Office Action, the Examiner asserts that the double-patenting rejection is proper because Applicants' Claim 1 does not include any positive cleaning step. The Examiner's statement is completely non-responsive to Applicant's argument regarding an obvious defect in both

double-patenting rejections. The Examiner thus fails to "take note of the applicant's argument and answer the substance of it". Accordingly, it is respectfully submitted that the present Office Action is not complete, because it fails to comply with the PTO requirement set forth in MPEP §707.07(f).

As yet another example, Applicants last Response argued on pages 5-6 that Hazelton U.S. Patent Application Publication No. 2006/0023185 has not been shown to be prior art. In lines 7-11 on page 5 of the present Office Action, the Examiner responds by merely making a conclusory assertion that Hazelton is entitled to his claimed priority dates. However, this merely restates the defect in the §103 rejection, and thus begs the question. The Examiner sidesteps Applicants' argument, and fails to "answer the substance of it". Accordingly, it is respectfully submitted that the present Office Action is not complete, because it fails to comply with the PTO requirement set forth in MPEP §707.07(f).

As still another example, Applicants last Response argued on page 7 that Van Slyke U.S. Patent No. 5,788,781 is not analogous prior art. In lines 12-16 on page 5 of the present Office Action, the Examiner begins by stating that he will address this rejection, but then engages in a discussion of the Hazelton patent, and never even mentions the Van Slyke reference. Applicants' argument on this point relates solely to Van Slyke. The issue of whether Van Slyke is analogous prior art depends solely on Van Slyke, and has absolutely nothing to do with Hazelton. Therefore, since the Examiner completely ignores Van Slyke, the Examiner's comments are completely non-responsive to Applicants' argument on this point. The Examiner thus fails to "take note of the applicant's argument and answer the substance of it". Accordingly, it is respectfully submitted that the present Office Action is not complete, because it fails to comply with the PTO requirement set forth in MPEP §707.07(f).

Thus, the Examiner takes the position that he is repeating rejections from the prior Office Action, but Applicants previously presented several different arguments as to which the present Office Action fails to "take note of the applicant's argument and answer the substance of it", and thus fails to comply with MPEP §707.07(f). Accordingly, it is respectfully submitted that the

present Office Action is not complete, due to failure to comply with MPEP §707.07(f). It is therefore respectfully submitted that the present Office Action must be withdrawn, and replaced with a new and complete Office Action that complies with MPEP 707.07(f), and that in particular takes note of each of Applicants' prior arguments and answers the substance of each of those arguments.

Compliance With 35 U.S.C. §112, Second Paragraph

The Office Action rejects Claims 1-8 under the second paragraph of 35 U.S.C. §112 as indefinite. The §112 rejection focuses on independent Claim 1. (Claims 2-8 are rejected because they depend from Claim 1). As to Claim 1, the Office Action asserts that Claim 1 is not complete because it does not include a positive recitation of cleaning the recited lens. This rejection is respectfully traversed. First, the preamble of Claim 1 recites a "method for cleaning lens used in an immersion lithography system (ILS)". Moreover, Claim 1 also expressly recites "an objective lens immersed in a first fluid containing surfactant". If an objective lens is immersed in a fluid that contains a surfactant, the surfactant will necessarily and inherently exert a cleaning effect on the lens. In other words, cleaning of the recited lens is an inherent result of the method that is in fact positively recited in Claim 1, and the fact that the method achieves this result does not mean that the claim must recite the result in addition to the recitation of the method. There is no PTO requirement that a method claim must recite a result in addition to the method itself. Thus, and contrary to the assertions in the Office Action, there is no need for Claim 1 to contain the additional language suggested by the Examiner of "cleaning the objective lens using the first fluid containing the surfactant", because this proposed language would add nothing to what is already recited in Claim 1. For these reasons, it is respectfully submitted that Claim 1 is already complete and definite, and in compliance with the second paragraph of §112. Claims 1-8 are thus all believed to be in compliance with the second paragraph of §112, and notice to that effect is respectfully requested.

Double Patenting Rejections

The Office Action rejects many of the claims for obviousness-type double-patenting, based on two co-pending applications (U.S. Serial No. 11/251,330 filed October 14, 2005, and U.S. Serial No. 11/384,624 filed March 20, 2006). These grounds of rejection are each respectfully traversed, because they have fundamental defects that are discussed separately below.

A first defect relates to the fact that, as to each of the double patenting rejections, the present Office Action admits that Applicants' claims are not identical to the claims in the co-pending application, but then essentially makes a conclusory assertion that the subject matter in Applicants' claims would be obvious in view of the claims in the co-pending application. However, in any obviousness analysis, the Examiner is always required to specifically identify for each rejected claim: (A) the differences between the rejected claim and the corresponding claim of the co-pending application, (B) the modification needed in the subject matter of the claim from the co-pending application in order to arrive at the subject matter of the rejected claim, and (C) a statement of a reason why a person of ordinary skill in the art would have been motivated to make the proposed modification. This same problem was present in the double-patenting rejections in each of the two most recent prior Office Actions (mailed November 15, 2006, and June 26, 2007). Applicants' last two Responses (filed April 10 and September 5, 2007) each pointed out this problem. However, the present Office Action makes no attempt to cure this problem. Applicants respectfully object to the fact that the Examiner keeps presenting double-patenting rejections that have obvious defects, without making any attempt to cure these defects. There is no reasonable excuse for the Examiner's failure to address Applicants' argument on this point, and cure the obvious defects in the double-patenting rejections. Applicants should not have to endure a stream of Office Actions having problems such as double-patenting rejections that clearly fail to comply with well-established PTO standards for obviousness determinations.

Still another consideration is that each of the double-patenting rejections is indicated to be a provisional double-patenting rejection, due to the fact that neither of the co-pending applications has actually issued as a patent. On the one hand, it is permissible for the Examiner to identify a rejection as "provisional" where the rejection is based on another application. On the other hand, it is also important to understand that, unless and until the other application issues as a patent, there is no actual risk of a double-patenting situation, and thus no reason for Applicants to take any corrective action here, such as amending claims or submitting a terminal disclaimer. Moreover, MPEP §804(I)(B) specifies that, where a provisional double patenting rejection is the only remaining rejection in an application, the Examiner should withdraw the provisional rejection, and permit a patent to issue from that application. For reasons discussed in other portions of these remarks, it is believed that all other grounds of rejection in the present Office Action are without merit, such that the provisional double patenting rejections are the only remaining rejections in this application. Applicants therefore believe that, pursuant to MPEP §804(I)(B), the Examiner should withdraw the double-patenting rejections in this application, and issue a notice of allowance.

In view of the various different reasons discussed above, it is respectfully submitted that the double patenting rejections each have defects, and should be withdrawn.

Independent Claims 9 and 20

Independent Claims 9 and 20 stand rejected under 35 U.S.C. §103 as obvious in view of a proposed combination of teachings from Hazelton U.S. Patent Application Publication No. 2006/0023185 and Van Slyke U.S. Patent No. 5,788,781. These grounds of rejection are each respectfully traversed, for the following reasons.

HAZELTON HAS NOT BEEN SHOWN TO BE PRIOR ART

The §103 rejection based on Hazelton fails to properly establish that Hazelton is prior art with respect to the present application. More specifically, the Hazelton patent issued from an

application filed on September 29, 2005, but this filing date is after the March 16, 2004 filing date of the present application. Hazelton claims the priority of a PCT application filed on April 2, 2004, but this PCT filing date is also after the March 16, 2004 filing date of the present application. Through the PCT application, Hazelton claims the priority of two U.S. provisional applications, which are U.S. Serial Nos. 60/462,556 and 60/482,913, respectively filed on April 11, 2003 and June 27, 2003. These two provisional applications each have filing dates before the filing date of the present application. However, that does not mean the Hazelton patent is automatically entitled to the benefit of the filing date of either provisional application in regard to the particular teachings for which Hazelton is cited.

First, in order to be applied under §103, Hazelton must qualify as prior art under a subsection of §102. Apparently, the Examiner is relying on §102(e). The Examiner has the burden of showing that Hazelton is in fact prior art with respect to the present application, and this includes carrying the burden of showing that, under §102(e), Hazelton is entitled to the priority of the filing date of at least one of the two provisional applications. In this regard, the Examiner will need to show that various requirements have been met. For example, as to the PCT application, the Examiner will need to demonstrate that it designated the United States, and that it was in fact published by WIPO. Also, in regard to the two provisional applications, the Examiner will need to demonstrate that the PCT application properly claimed the priority of each provisional application. The §103 rejection in the present Office Action fails to do any of this. Stated differently, the present Office Action establishes only that Hazelton is entitled to the benefit of its own U.S. filing date of September 29, 2005, but that is not enough to make Hazelton prior art with respect to the present application.

Further, the disclosures of the provisional applications and the PCT application are not assumed to be identical to the disclosure of the Hazelton patent. In the present Office Action, the Examiner cites and provides a photocopy of the '556 provisional application. However, that is not enough. In addition, the Examiner will need to cite and provide Applicants with a copy of the PCT application. Moreover, the Examiner will need to point out the specific locations in the

PCT application that disclose all of the teachings for which Hazelton is cited, and the Examiner must do this for each of the independent claims and also each of the dependent claims. Then, in addition, the Examiner will need to point out the specific locations in the '556 provisional application that disclose all of the teachings for which Hazelton is cited, and the Examiner must do this for each of the independent claims and also each of the dependent claims. The present Office Action fails to do any of this. Stated differently, as to each teaching for which Hazelton is cited, the Examiner will need to show (1) where that teaching is disclosed in Hazelton's '556 provisional application, (2) where that teaching is disclosed in Hazelton's PCT application, and (3) where that teaching is disclosed in Hazelton's U.S. Patent Application Publication No. 2006/0023185. Otherwise, Hazelton does not qualify as prior art with respect to the present application.

Applicants previously presented this same argument, and the Examiner effectively ignored it. On page 5 of the present Office Action, the Examiner asserts that Applicants' argument prior argument on this point is "unpersuasive, because the priority date for Hazelton et al. is April 11, 2003 and June 27, 2003". In other words, the Examiner makes a conclusory assertion that Hazelton's U.S. Patent Application Publication No. 2006/0023185 is automatically entitled to all of its claimed priority dates. However, the Examiner is wrong. In this regard, the attention of the Examiner is respectfully directed to MPEP §2136.03(II) and §2136.02(III), and in particular to the discussion there of the first paragraph of 35 U.S.C. §112. In the present application, the Examiner has the burden of making the §112 showing that is discussed above and in Applicants' last Response, and to date the Examiner has failed to do so. Absent that showing, the Examiner has not carried the burden of showing that Hazelton qualifies as prior art with respect to the present application. As a result, the §103 rejection of Claims 9 and 20 based on Hazelton is automatically defective. There is no reasonable excuse for the Examiner's failure to respond to Applicants' argument and cure this very obvious defect in the §103 rejection. Applicants should not have to endure multiple Office Actions having problems such as claim rejections that have obvious defects.

NONANALOGOUS ART CANNOT BE USED TO ESTABLISH OBVIOUSNESS

Only analogous prior art can be considered for the purpose of trying to establish a prima facie case of obviousness under 35 U.S.C. §103. In this regard, MPEP §2141.01(a) specifies that, for a reference to be "analogous" prior art that can be considered under §103, it must be either (1) in the field of Applicants' endeavor or (2) reasonably pertinent to the particular problem with which the inventor was concerned. The claims of the present application are all directed to immersion lithography technology. The primary reference (Hazelton) also relates to the field of immersion lithography technology. On the other hand, the secondary reference (Van Slyke) has absolutely nothing to do with immersion lithography, and in fact is from a radically different field. The Van Slyke patent was obtained by an oil company (Union Oil Company), and relates to techniques for removing oil (petroleum products) from materials such as fabrics or drill cuttings. Moreover, as discussed in the background section of the present application, for example in paragraph [0009], the problems affecting immersion lithography (with which the present inventors were concerned) include (1) resist defects, (2) micro-bubbles, and (3) miscellaneous particles. None of these appear to be fundamentally oily in nature.

Thus, Van Slyke is not even remotely related to Applicants' field of endeavor involving immersion lithography. Moreover, the problem solved by Van Slyke appears to be different from the problem with which the present inventors were concerned. Accordingly, it is respectfully submitted that Van Slyke is not what the PTO considers to be "analogous" prior art, and therefore cannot properly be used in an attempt to establish a prima facie case of obviousness under §103.

In reply to this argument, section 11 on page 5 of the present Office Action discusses why Hazelton is considered to be analogous prior art. However, Applicants' argument is that Van Slyke is not analogous prior art. Hazelton is completely irrelevant to the issue of whether Van Slyke is analogous art. As a practical matter, the Examiner completely fails to respond to Applicants' argument that Van Slyke is not what the PTO considers to be "analogous" prior art,

and therefore cannot properly be used in an attempt to establish a prima facie case of obviousness under §103.

Since Van Slyke is not analogous prior art, the Examiner's burden of factually supporting a prima facie case of obviousness has clearly not been met. For this reason alone, it is respectfully submitted that the §103 rejections of Claims 9 and 20 must be withdrawn, and notice to that effect is respectfully requested.

In view of each of the various different reasons discussed above, it is respectfully submitted that independent Claims 9 and 20 of the present application are not rendered obvious under §103 by Hazelton and Van Slyke. Accordingly, these claims are believed to be allowable, and notice to that effect is respectfully requested.

Independent Claims 1 and 15

Independent Claims 1 and 15 each stand rejected under 35 U.S.C. §103 as obvious in view of a proposed combination of teachings from Hazelton and Van Slyke. These grounds of rejection are respectfully traversed, for the following reasons.

HAZELTON HAS NOT BEEN SHOWN TO BE PRIOR ART

For the reasons discussed above in association with Claims 9 and 20, it is respectfully submitted that the Examiner has failed to carry the burden of showing that Hazelton qualifies as prior art with respect to the present application. Accordingly, the §103 rejection based on Hazelton is automatically defective.

NONANALOGOUS ART CANNOT BE USED TO ESTABLISH OBVIOUSNESS

For the reasons discussed above in association with Claims 9 and 20, it is respectfully submitted that Van Slyke is not what the PTO considers to be "analogous" prior art. Van Slyke therefore cannot properly be used in an attempt to establish a prima facie case of obviousness

under §103. Since Van Slyke is not analogous prior art, the Examiner's burden of factually supporting a *prima facie* case of obviousness has clearly not been met. For this reason alone, it is respectfully submitted that the §103 rejections of Claims 1 and 15 must be withdrawn, and notice to that effect is respectfully requested.

THE PROPOSED COMBINATION DOESN'T TEACH THE CLAIMED SUBJECT MATTER

The provisions of MPEP §2142 specify with respect to §103 that:

To establish a *prima facie* case of obviousness . . . the prior art reference (or references when combined) must teach or suggest **all** the claim limitations. (Emphasis added).

The PTO considers this requirement to be important, as evidenced by the fact that this exact language appears not only in MPEP §2142, but also in other sections of the MPEP, including MPEP §706.02(j) and MPEP §2143. The proposed combination of Hazelton and Van Slyke does not teach the subject matter recited in either Claim 1 or Claim 15. For example, Applicants' Claim 1 includes a recitation of:

. . . performing a light exposing operation on the wafer using an objective lens immersed in a first fluid containing surfactant.

Applicants' Claim 15 includes a recitation of:

means for performing a light exposing operation on the wafer using an objective lens immersed in the first fluid; and
means for providing a surfactant to the first fluid to form a second fluid to reduce an adherence of floating defects to the wafer or the objective lens.

Thus, Claim 1 specifies that the fluid containing the surfactant is the same fluid that is used for immersion lithography. Claim 15 recites structure for adding a surfactant to a fluid used for immersion lithography. However, the proposed combination of Hazelton and Van Slyke does not result in either of these approaches. In more detail, Hazelton discloses an immersion lithography system, but uses separate and distinct fluids for (1) immersion lithography and (2) cleaning. For example, Hazelton's abstract discusses both an "immersion liquid" and a "cleaning liquid", explaining that:

. . . a fluid-supplying device serves to supply an immersion liquid into this gap such that the supplied immersion liquid contacts both the optical element and the workpiece during an immersion lithography process. A cleaning device is incorporated for removing absorbed liquid from the optical element during a cleanup process. The cleaning device may make use of a cleaning liquid having affinity to the absorbed liquid The cleaning liquid may be supplied through the same fluid-applying device provided with a switching device such as a valve.

As another example, paragraphs [0034] and [0035] of Hazelton explain that:

[0034] A method . . . is explained next with reference to FIGS. 1 and 4. After the wafer W is exposed with light from the illuminator optical unit 1 through the light projection unit PL in the presence of the liquid 7 as shown in FIG. 1, the liquid 7 is removed from underneath the light projection unit PL and a cleaning device 30 is brought into contact with the last-stage optical element 4 as shown in FIG. 4. . . .

[0035] Different types and kinds of cleaning devices 30 can be used for the purpose of this invention. As a first example, the cleaning device 30 may be a container containing a liquid ("cleaning liquid") having a strong affinity to the immersion liquid 7 that is absorbed by the optical element 4. . . . The bottom surface of the optical element 4 is soaked in the cleaning liquid for a period of time sufficiently long to reduce the level of the absorbed immersion liquid. The cleaning device 30 is removed thereafter and the optical element 4 is ready to be exposed to the liquid 7 again.

Thus, Hazelton does not teach or suggest the idea of providing or adding a surfactant in the same fluid that is used for immersion lithography. Consequently, the question is whether Van Slyke cures this shortcoming in Hazelton. Van Slyke does not cure this shortcoming. Van Slyke does not relate to immersion lithography, and does not disclose any immersion lithography system or method. Accordingly, Van Slyke clearly does not teach or suggest any technique for cleaning an immersion lithography system, much less in the particular manner recited in Claim 1, or the particular manner recited in Claim 15. Van Slyke thus adds nothing at all to Hazelton in this regard.

Summarizing, the Examiner asserts that it would be obvious to replace the ethanol in Hazelton's cleaning fluid with a surfactant taught by Van Slyke. But even if this substitution is made, the result is not the subject matter recited in either Applicants' Claim 1 or Applicants' Claim 15. In particular, Hazelton's cleaning fluid would include a surfactant, but Hazelton's cleaning fluid is separate and distinct from the fluid that Hazelton uses for immersion lithography. The proposed combination would not result in the presence of a surfactant at any time in the fluid used by Hazelton to carry out immersion lithography. In other words, even if Hazelton and Van Slyke are combined in the manner proposed in the Office Action, the resulting combination does not meet all of the limitations from Claim 1 that have been quoted above, nor does it meet all of the limitations from Claim 15 that have been quoted above. Thus, even when the indicated teachings from Hazelton and Van Slyke are combined, they fail to satisfy the requirement of MPEP §2142 that their combined teachings must collectively "teach or suggest **all** the claim limitations" (emphasis added). For this independent reason alone, it is respectfully submitted that neither of Claims 1 and 15 is obvious under §103 in view of Hazelton and Van Slyke, and notice to that effect is respectfully requested.

In view of each of the various different reasons discussed above, it is respectfully submitted that independent Claims 1 and 15 of the present application are not rendered obvious under §103 by Hazelton and Van Slyke. Accordingly, these claims are believed to be allowable, and notice to that effect is respectfully requested.

Dependent Claims

Claims 2-8, Claims 10-14, Claims 16-19 and Claims 21-27 respectively depend from Claim 1, Claim 9, Claim 15 and Claim 20, and are also believed to be allowable over the art of record, for example for the same reasons discussed above in association with Claims 1, 9, 15 and 20, respectively.

Conclusion

Based on the foregoing, it is respectfully submitted that all of the pending claims are fully allowable, and favorable reconsideration of this application is therefore respectfully requested. If the Examiner believes that examination of the present application may be advanced in any way by a telephone conference, the Examiner is invited to telephone the undersigned attorney at 972-739-8647.

Although Applicants believe that no additional fees are due, the Commissioner is hereby authorized to charge any fees required by this paper, or to credit any overpayment, to Deposit Account No. 08-1394 of Haynes and Boone, LLP.

Respectfully submitted,



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Enclosures: None